



Atty Dkt. No.: UCAL-203
USSN: 09/828,505

I. AMENDMENTS

IN THE CLAIMS

Cancel claims 1, 6, 8, 9, 11-13, 15-18, 19, 22, and 26 without prejudice to renewal.

Please enter the amendments to claims 2-5, 7, 10, 14, 20, 21, 23-25, and 27-32, as shown below.

Please enter new claim 33, as shown below.

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1. (Canceled)
2. (Currently Amended) A polynucleotide composition comprising a nucleic acid encoding a plant allergen derived from a non-host species of a first phylum or first kingdom. The polynucleotide vaccine of claim 1, wherein the nucleic acid sequence encoding the plant allergen antigen is further modified to include a signal sequence derived from a second phylum or second kingdom, wherein the signal sequence is operably linked to the allergen-encoding antigen-encoding sequence.
3. (Currently Amended) The polynucleotide composition vaccine of claim 2, wherein the signal sequence comprises a hemagglutinin A (HA) signal sequence.
4. (Currently Amended) The polynucleotide composition vaccine of claim 2, wherein at least one codon of the nucleic acid sequence encoding the plant allergen antigen is modified from a wild type sequence of the non-host species to an analogous codon of a host species.
5. (Currently Amended) The polynucleotide composition vaccine of claim 2, further comprising a universal antigen or an immunogenic fragment thereof.
6. (Canceled)
7. (Currently Amended) The polynucleotide composition vaccine of claim 2, wherein the antigen is Amb a1.
- 8-9. (Canceled)

10. (Currently Amended) A method for modulating an reducing a Th2 immune response to a plant allergen, an antigen comprising administering to a subject an effective amount of a polynucleotide composition vaccine of claim 2 + and an effective amount of an immunostimulatory nucleotide sequence (ISS) comprising an unmethylated 5'-CG-3' nucleotide sequence in an amount effective to modulate an to reduce a Th2 immune response to the allergen antigen.

11-13. (Canceled)

14. (Currently Amended) The method of claim 10 +3, wherein the plant allergen is ragweed or grass pollen.

15-19. (Canceled)

20. (Currently Amended) The method of claim 10 +9, wherein the ISS comprises a sequence selected from the group consisting of: 5'-rrcggy-3', 5'-rycggy-3', 5'-rrcggyycg-3', 5'-rycggyycg-3' and or 5'-(TCG)n-3'.

21. (Currently Amended) The method of claim 20, wherein the sequence is AACGTT selected from the group consisting of: AACGTT, AGCGTT, GACGTT, GGGGTT, AACGTC, AGCGTC, GACGTC, GGGGTC, AACGCC, AGCGCC, GACGCC, GGGGCC, AACGCT, AGCGCT, GACGCT, GGCGCT, ATCGTT, ACCGTT, GTCGTT, GCCGTT, ATCGTC, ACCGTC, GTCGTC, GCCGTC, ATCGCT, ACCGCT, GTCGCT, GCCGCT, ATCGCC, ACCGCC, GTCGCC, GCGGCC, AACGTTCG, AGCGTTCG, GACGTTCG, GGGGTTCG, AACGTCAG, AGCGTCCG, GACGTCAG, GGCGTCCG, AACGCCAG, AGCGCCAG, GACGCCAG, GGGGCCAG, AACGCTAG, AGCGCTAG, GACGCTAG, GGCGCTAG, ATCGTTAG, ACCGTTAG, GTCGTTAG, GCGGTTAG, ATCGTCAG, ACCGCTAG, GTCGCTAG, GCCGCTAG, ATCGCTAG, ACCGCTAG, GTCGCTAG, GCGGCTAG, ATCGCCCCAG, ACCGCCAG, GTCGCCCCAG and GCGGCCAG.

22. (Canceled)

23. (Currently Amended) A polynucleotid composition comprising a nucleic acid encoding an Amb a1 allergen modified by deletion of a native Amb a1 signal sequence, The polynucleotide vaccine of claim 22, wherein the nucleic acid sequence encoding the Amb a1 allergen is further modified to comprise a heterologous signal sequence operably linked to the Amb a1 allergen-encoding sequence.

24. (Currently Amended) The polynucleotide composition vaccine of claim 23, wherein the heterologous signal sequence comprises a hemagglutinin A (HA) signal sequence.

25. (Currently Amended) The polynucleotide composition vaccine of claim 23 22, wherein at least one codon of the nucleic acid sequence encoding the Amb a1 allergen is modified from a wild type sequence of the Amb a1 allergen to an analogous human codon.

26. (Canceled)

27. (Currently Amended) A polynucleotide composition comprising:
a polynucleotide comprising a nucleic acid sequence encoding plant allergen derived from a first phylum or first kingdom, wherein the nucleic acid sequence encoding the plant allergen is modified by deletion of a native signal sequence; and

an immunomodulatory nucleic acid molecule comprising the sequence 5'-cytosine-guanine-3'
The polynucleotide vaccine composition of claim 26, wherein the nucleic acid sequence encoding the plant allergen antigen is further modified to include a heterologous signal sequence derived from a second phylum or second kingdom, wherein the signal sequence is operably linked to the antigen-encoding sequence.

28. (Currently Amended) The polynucleotide vaccine composition of claim 27, wherein the heterologous signal sequence comprises a hemagglutinin A (HA) signal sequence.

29. (Currently Amended) The polynucleotide vaccine composition of claim 27 26, wherein at least one codon of the nucleic acid sequence encoding the plant allergen antigen is modified from a wild type sequence of the non-host species to an analogous codon of a host species.

30. (Currently Amended) The polynucleotide ~~vaccine~~ composition of claim 27 26, wherein the plant allergen antigen is Amb a1.

31. (Currently Amended) The polynucleotide ~~vaccine~~ composition of claim 27 26, wherein the immunomodulatory nucleic acid molecule comprises a sequence selected from the group consisting of 5'-rrcggy-3', 5'-rycggy-3', 5'-rrcggyycg-3', 5'-rycggyycg-3' or 5'-(TCG)n-3'.

32. (Currently Amended) The polynucleotide ~~vaccine~~ composition of claim 27 26, wherein the immunomodulatory nucleic acid molecule comprises a the sequence AACGTT selected from the group consisting of: AACGTT, AGCGTT, GACGTT, GGCGTT, AACGTC, AGCGTC, GACGTC, GGCGTC, AACGCC, AGCGCC, GACGCC, GGCGCC, AACGCT, AGCGCT, GACGCT, GGCGCT, ATCGTT, ACCGTT, GTCGTT, GCCGTT, ATCGTC, ACCGTC, GTCGTC, GCCGTC, ATCGCT, ACCGCT, GTCGCT, GCCGCT, ATCGCC, ACCGCC, GTCGCC, GGCGCC, AACGTTCG, AGCGTTCG, GGCGTTCG, AACGTCCG, AGCGTCCG, GACGTCCG, GGCGTCCG, AACGCCCCG, AGCGCCCCG, GACGCCCCG, GGCGCCCCG, AACGCTCG, AGCGCTCG, GACGCTCG, GGCGCTCG, ATCGTTCG, ACCGTTCG, GTCGTTCG, GCCGTTCG, ATCGTCCG, ACCGTCCG, GTCGTCCG, GCCGTCCG, ATCGCTCG, ACCGCTCG, GTCGCTCG, GCCGCTCG, ATCGCCCCG, ACCGCCCCG, GTCGCCCCG and GGCGCCCCG.

[Please enter new claim 33, as shown below.]

--33. (New) The method of claim 10, wherein the level of IgE specific for the plant allergen is reduced. --